



CONSERVATION ENHANCEMENT ACTIVITY

E327B

CONSERVATION STEWARDSHIP PROGRAM

Establish Monarch butterfly habitat

Conservation Practice 327: Conservation Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Seed or plug milkweed (*Asclepias* spp.), and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips, and similar areas.

Criteria

- Habitat areas must be at least 0.5 acres.
- Establish and maintain habitat for monarch butterflies as described below:

A. Monarch butterflies

- Lists of larval host plants and nectar plants suitable for monarch butterfly habitat are provided in the NRCS Field Office Technical Guide (FOTG).
- A grass component to a monarch habitat planting is commonly needed for ecological stability, weed control, and fuel for prescribed burning. The FOTG provides information on the grass/forb ratio for monarch habitat plantings.
- To provide food (nectar and pollen) for adult monarch butterflies, at least 60% of the forb seeds (pure live seed) in the mix shall be from the monarch butterfly planting list



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(FOTG). Milkweed seeds are included in meeting the 60% minimum because milkweeds are excellent nectar plants. The FOTG provides information on the required number of forb species per bloom period (early, mid, or late season) for monarch habitat plantings. Bloom periods are to coincide with monarch presence in the area.

- To provide food for monarch butterfly larvae, plantings shall include at least one species of milkweed (*Asclepias* spp.) from the FOTG monarch butterfly planting list. All milkweed species used in the mix must be from this list and shall represent at least 1.5% of the total seeds in the mix. The total seeds include pure live seed from both grass and forbs. Tropical milkweed (*Asclepias curassavica*) shall not be planted.

Waiver: In some regions, a commercial source of native Asclepias species is limited or not available. In these situations, the NRCS State Conservationist may apply for a waiver, and only require that plantings include monarch nectaring species. In this situation, milkweed seed or plugs are still encouraged to be planted, if possible. If such a waiver is granted, the mix will result in at least 80% of the seed being from the state's monarch nectaring plant list.

- Any other use of the monarch butterfly habitat area must not compromise its intended purpose.
- If a Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) is available for use in the state, a minimum planned Monarch WHEG score of "0.60 will be obtained for the planted area.

B. Planting criteria for monarch butterfly habitat

- Site selection should consider existing weed pressures and available methods of control. Delay planting and conduct an additional growing season of weed control if high weed pressure requires aggressive treatment.
- Site preparation and plant establishment shall be accomplished according to the state's specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327) or Wildlife Habitat Planting (Code 420).
- Successful establishment is when the planting provides at least 80 percent soil cover when visually estimated, and resultant cover consists of at least 500 milkweed plants



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per acre (approx. 1 stem per each 100-sq. ft.), and successful establishment of at least two targeted nectar plants per bloom period when monarchs are present in the state. A milkweed plant is defined as a single stem emerging from the ground.

- Insecticides should not be used in the habitat planting area.
- Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
- After a monarch habitat enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, in the first-year post-planting, the entire site may be mowed 8 to 10 inches high to reduce annual or biennial weeds that persist (site should be mowed just before dominant annual weeds flower).

C. Operation and maintenance for monarch butterfly habitat

- Management and/or maintenance activities such as mowing, haying, burning, or grazing shall be conducted outside of the season when monarch larvae or adults are present.
- Insecticides should not be used in the habitat planting area.
- The planted habitat areas shall be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species shall be controlled using Individual Plant Treatment methods, for example, spot-spraying with herbicide or physical removal of individual plants.



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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- ☐ During implementation, purchase specified seed mix or plant materials that meets monarch-specific seeding or planting requirements provided by NRCS.
- ☐ During implementation, follow habitat establishment guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327).
- ☐ After implementation, provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- ☐ After implementation, provide photo documentation of monarch habitat areas.

NRCS will:

- ☐ Prior to implementation, assess habitat condition using a monarch Wildlife Habitat Evaluation Guide (WHEG) to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Benchmark WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, provide participant with suitable larval host plants and nectar plants lists.
- ☐ Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327) or Wildlife Habitat Planting (Code 420).
- ☐ Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for monarch habitat plantings).
- ☐ After implementation, verify successful establishment (per planting criteria above).



United States Department of Agriculture

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

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PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

**CSP 2020
Mississippi Supplement
E327B**

Establish Monarch Butterfly Habitat

Documentation Requirements:

- Landowner must be provided with one of the following documents that includes a recommended seed mix, planting specifications, and management/maintenance recommendations: Either a completed Implementation Requirement (IR) sheet, 327 - Conservation Cover, OR a completed MS-ECS-ESTVEG-01(SS) specification sheet, OR a planting prescription and management/maintenance plan approved by a NRCS area/state wildlife biologist.
- A Mississippi Pollinator Habitat Evaluation Guide (WHEG) must be completed for both before and after implementation of this enhancement. Minimum WHEG value for after implementation must be 0.75.
- Management/maintenance activities can be implemented anytime, as needed, within the first year of post-planting. Afterwards, no more than 1/3 of the total acreage should be managed each year. Management and/or maintenance activities must be conducted outside of the growing season or bloom period of November 1 to April 1 (or after the first killing frost to spring green-up) to allow completion of blooming and seed production.
- Map(s) delineating the area that will be treated.

Producer:

Project or Contract:

Location:

County:

Farm Name:

Tract Number:

Practice Location Map

(showing detailed aerial view of where practice is to be installed on farm/site, showing all major components, stationing, relative location to any landmarks, and survey benchmarks)

Index

Cover Sheet

Specifications

Drawings

Cost Estimate
and Project Bid
Form

Operation &
Maintenance

Utility Safety /
One-Call System
Information

Description of work:

NRCS Review Only

Designed By:

Date:

Checked By:

Date:

Approved By:

Date:

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The Practice Purpose(s):

Reduce erosion
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Field Number/Location: Acres Installed: Seeding
..... Date:

Site Preparation:

Planting Method:

Planting Description (e.g. shrubs established on outside edge of area, etc.):

SEEDING RATES AND SPECIES

Plant species	bs/acre of seed (PLS)	Total bs of seed for planned acreage
TOTALS =>		

FERTILIZERS AND AMENDMENTS

Fertilizer Element	Fertilizer Form	Fertilizer Amount (lbs/acre)
N	<i>e.g. DAP</i>	as N
P	<i>e.g. DAP</i>	as P ₂ O ₅
K	<i>e.g. K₂SO₄</i>	as K ₂ O
S	<i>e.g. K₂SO₄</i>	as S
Lime		
Gypsum		

NRCS
January 2013

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.....Implementation Requirements

Operation and Maintenance: (check all that apply)

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SPECIFICATION SHEET FOR ESTABLISHMENT OF VEGETATION

Program
Fiscal Year: _____

MS-ECS-ESTVEG-01 (SS)
Rev. September 2011

INFORMATION ON THIS SPECIFICATION SHEET IS CONSIDERED TO BE A PART OF THE NRCS CONTRACT AND/OR CONSERVATION PLAN THAT HAS BEEN DEVELOPED WITH THE PARTICIPANT. Each contract will have a site-specific plan developed by NRCS and the participant. This plan will at a minimum consist of the location, practice(s), species to be established, planting dates and depth, spacing, seeding rates, lime and fertilizer rates, site prep (if needed), and method of planting.

Participant Name(s): _____ County: _____

Contract Number: _____ FSN: _____ Tract No.: _____ Date Prepared/Revised: _____

ESTABLISHMENT REQUIREMENTS 1/

FIELD NO(S).	ACRES	PRACTICE NO. AND NAME	SPECIES 2/	UNITS/AC AND/OR SPACING	PLANTING DATES	SITE PREPARATION	FERTILIZER / LIME REQUIREMENTS UNITS/AC 3/	ESTABLISHMENT METHOD AND PLANTING DEPTH	SCHEDULED COMPLETION DATE
							Fertilizer:		
							Lime:		
							Fertilizer:		
							Lime:		
							Fertilizer:		
							Lime:		

1/ Sources: FOTG Section IV, Planting Guides, Job Sheets. **If Column does not apply, enter N/A.**

2/ Species - May contain trees, shrubs, introduced or native grasses, legumes and/or forbs.

3/ Lime and fertilizer will be applied in accordance with soil test recommendation and program requirements (if applicable). Document fertilizer requirements in lbs. of N-P-K/ac.; lime in tons/ac.

Example Pollinator Planting Mixes

Planting rates designed to be 50 seeds per square foot. All seeding rates are in pounds of pure live seed (PLS).

Combination 1		lb PLS per	oz PLS per
#	Species	acre in mix	acre in mix
1	Lanceleaf Tickseed (<i>Coreopsis lanceolata</i>)	0.50	8
2	Grey-headed Coneflower (<i>Ratibida pinnata</i>)	0.25	4
3	Lemon Mint (<i>Monarda citriodora</i>)	0.50	8
4	Black-Eyed Susan (<i>Rudbeckia hirta</i>)	0.25	4
5	Clasping Coneflower (<i>Dracopis amplexicaulis</i>)	0.50	8
6	Butterfly Weed (<i>Asclepias tuberosa</i>) OR Common Milkweed (<i>A. syriaca</i>)	0.50	8
7	Blanket Flower (<i>Gaillardia aristata</i>)	0.50	8
8	Maximilian's Sunflower (<i>Helianthus maximiliani</i>)	0.25	4
9	Dense Blazing Star (<i>Liatris spicata</i>)	0.25	4
Totals		3.50	56

Combination 2		lb PLS per	oz PLS per
#	Species	acre in mix	acre in mix
1	Lanceleaf Tickseed (<i>Coreopsis lanceolata</i>)	0.75	12
2	Blue Flax (<i>Linum perenne</i>)	0.75	12
3	Lemon Mint (<i>Monarda citriodora</i>)	1.00	16
4	Dense Blazing Star (<i>Liatris spicata</i>)	0.75	12
5	Purple Coneflower (<i>Echinacea purpurea</i>)	0.75	12
6	Butterfly Weed (<i>Asclepias tuberosa</i>) OR Common Milkweed (<i>A. syriaca</i>)	0.75	12
7	Blanket Flower (<i>Gaillardia aristata</i>)	0.75	12
8	Maximilian's Sunflower (<i>Helianthus maximiliani</i>)	0.50	8
9	Scarlet Sage (<i>Salvia coccinea</i>)	0.75	12
totals		6.75	108

Combination 3		lb PLS per	oz PLS per
#	Species	acre in mix	acre in mix
1	Lanceleaf Tickseed (<i>Coreopsis lanceolata</i>)	1.00	16
2	Lupine (<i>Lupinus perennis</i>)	0.75	12
3	Lemon Mint (<i>Monarda citriodora</i>)	1.00	16
4	Scarlet Sage (<i>Salvia coccinea</i>)	0.75	12
5	Purple Coneflower (<i>Echinacea purpurea</i>)	1.00	16
6	Butterfly Weed (<i>Asclepias tuberosa</i>) OR Common Milkweed (<i>A. syriaca</i>)	1.00	16
7	Blanket Flower (<i>Gaillardia aristata</i>)	1.00	16
8	Maximilian's Sunflower (<i>Helianthus maximiliani</i>)	0.50	8
9	Dense Blazing Star (<i>Liatris spicata</i>)	0.75	12
totals		7.75	124

Combination 4		lb PLS per	oz PLS per
#	Species	acre in mix	acre in mix
1	Grey-headed Coneflower (<i>Ratibida pinnata</i>)	0.75	12
2	Lupine (<i>Lupinus perennis</i>)	0.75	12
3	Blue Flax (<i>Linum perenne</i>)	0.75	12
4	Clasping Coneflower (<i>Dracopis amplexicaulis</i>)	0.75	12
5	Purple Coneflower (<i>Echinacea purpurea</i>)	0.75	12
6	Butterfly Weed (<i>Asclepias tuberosa</i>) OR Common Milkweed (<i>A. syriaca</i>)	0.75	12
7	Blanket Flower (<i>Gaillardia aristata</i>)	0.75	12
8	Maximilian's Sunflower (<i>Helianthus maximiliani</i>)	0.25	4
9	Dense Blazing Star (<i>Liatris spicata</i>)	0.25	4
totals		5.75	92

SPECIES RECOMMENDED FOR PLANTING POLLINATOR ENHANCEMENT AREAS IN MISSISSIPPI

Flowering Dates	Soil	Sun	Botanical Name	Common Name	Color	Height	Visitation by Pollinator
Perennial Flowers							
April-June	moist	sun to partial shade	Coreopsis spp.	Tickseed	golden-yellow	4-18"	butterflies, hummingbirds
March-September	moist to dry	sun to partial shade	Salvia coccinea	Blood Sage, Scarlet Sage	red	12-36"	butterflies, bees, hummingbirds
March-June	moist to dry	sun to partial shade	Salvia lyrata	Lyre-leaf Sage	white, blue, lavender, violet	12-24"	hummingbirds, butterflies
February- May	moist to dry	sun	Nuttallanthus spp.	Toadflax	blue, violet	1-3'	butterflies, bees
May-September	moist to dry	sun to partial shade	Achillea spp.	Yarrow	white, light yellow	10-36"	bees, beetles, flies, butterflies
May-August	moist to wet	sun	Asclepias spp.	Common Milkweed, Butterfly Milkweed, Swamp Milkweed	pink, purple, white, orange to yellow	24-36"	butterflies, bees
May-September	dry	sun to partial shade	Coreopsis tinctoria	Golden Tickseed	yellow with red-brown centers	18-24"	butterflies, syphrid flies, bees
May-July	moist	sun to partial shade	Desmanthus illinoensis	Illinois Bundleflower	white	2-18"	bees, butterflies, flies
May-July	moist to dry	sun to partial shade	Dracopis spp.	Clasping Coneflower	yellow with red-brown centers	12-36"	bees, butterflies
May-July	moist to dry	sun to partial shade	Penstemon spp.	Beardtongue	white to blue	1-3'	bees, hummingbirds
May-September	moist to dry	sun to partial shade	Ratibida pinnata	Pinnate Prairie Coneflower or Greyhead Coneflower	yellow with red-brown centers	3-5'	butterflies, bees
May-October	moist to dry	sun to partial shade	Rudbeckia spp.	Black-eyed Susan, Brown-eyed Susan	yellow, brown center	14-20"	bees, beetles, flies, butterflies
May-June	dry	sun to partial shade	Tephrosia virginiana	Virginia Goat's-rue	pink/yellow	8-28"	butterflies, hummingbirds
Sept-Oct	moist	sun	Bidens aristosa	Beggar Ticks or Bur-marigold	yellow	24-36"	bees, beetles, flies, butterflies
June-September	moist	sun to partial shade	Chamaecrista spp.	Partridge Pea	yellow	18-30"	bees
July-August	moist to dry	sun to partial shade	Desmodium spp.	Ticktrefoil, Beggar Ticks, Stick Tights	pink to purple	18-30"	bees, butterflies
July-October	moist	sun to partial shade	Eupatoriadelphus spp.	Trumpet Weed or Joe Pye Weed	pink, lavender	to 8'	bees, butterflies, flies
August-Oct	dry	sun to partial shade	Eupatorium spp.	Boneset, Thoroughwort, Sweetscented Joe-Pye Weed	white, pink	18-36"	butterflies, beetles, bees
August-Oct	dry to wet	sun	Helianthus spp.	Narrowleaf or Swamp, Woodland, Hairy Sunflowers	yellow	5-7'	butterflies, beetles, bees
July-Sept	moist to mesic	sun	Liatris spicata	Dense Blazing Star	rosy-pink to purple	3-4'	butterflies, bees, hummingbirds
July-Oct	dry	sun to partial shade	Solidago spp.	Goldenrod	yellow	2-4'	butterflies, bees, beetles
August-October	moist to dry	sun to partial shade	Symphytotrichum spp.	New England Aster, Blue Wood Aster, White Oldfield Aster	white, blue, lavender	18"-6'	butterflies, bees
August-October	moist	sun to partial shade	Vernonia gigantea	Ironweed	purple	3-5'	bees, beetles, flies, butterflies

Forb (flowering) mixtures should contain at least 3 species that bloom before June; 3 additional species that flower sometime between June-July; and 3 additional species that flower after July. The 3 species need not be in bloom for the entirety of a bloom period. Mixtures of forbs and/or legumes should be planted at the rate of 20 - 40 pure live seed (PLS) per square foot.

Native Grasses

June-October	dry	sun to partial shade	<i>Schizachyrium scoparium</i>	little bluestem	yellow	3-6'	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	<i>Sorghastrum nutans</i>	Indiangrass	yellow	3-8'	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	<i>Andropogon gerardii</i>	big bluestem	red, blue, brown	4-8'	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	<i>Andropogon spp.</i>	other native bluestem spp. (broomsedge, bushy, etc.)	yellow, white, brown	3-6'	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	<i>Panicum virgatum</i>	switchgrass	green, brown	3-6'	butterflies (larval host), bees (for ground nesting)
June-October	moist to dry	sun to partial shade	<i>Bouteloua curtipendula</i>	sideoats grama	red, orange, yellow	1-3'	butterflies (larval host), bees (for ground nesting)

Mixtures of forbs, legumes and/or native grasses should be planted at the rate of 40 - 60 PLS per square foot with no more than 25% of the seed mix being made up of a native warm season grass seed.

SPECIES RECOMMENDED FOR MANAGING EXISTING POLLINATOR ENHANCEMENT AREAS IN MISSISSIPPI

Flowering Dates	Soil	Sun	Botanical Name	Common Name	Color	Height	Visitation by Pollinator	Also a host
Early Flowering								
Perennial Flowers								
April-June	dry	shade to partial shade	Phlox amoena	Hairy Phlox	lavender	12-15"	butterflies, hummingbirds	
April-June	moist to dry	shade to partial shade	Heuchera americana	American Alumroot	white	6-30"	hummingbirds, sweat bees	
March-September	moist to dry	sun to partial shade	Salvia coccinea	Blood Sage, Scarlet Sage	red	12-36"	butterflies, bees, hummingbirds	
March-June	moist to dry	sun to partial shade	Salvia lyrata	Lyre-leaf Sage	white, blue, lavender, violet	12-24"	hummingbirds, butterflies	
February- May	moist to dry	sun	Nuttallanthus spp.	Toadflax	blue, violet	1-3'	butterflies, bees	
March-April	moist	shade	Arisaema spp.	Jack-in-the-Pulpit	greenish maroon	12-24"	flies	
April-June	moist	shade to partial shade	Phlox glaberrima var. glaberrima	Piedmont Smooth Phlox	pink	30-36"	butterflies, moths, hummingbirds	X
April-May	moist	sun to partial shade	Amsonia tabernaemontana	Eastern Bluestar	blue	to 36"	butterflies, hummingbirds, carpenter bee, moths	X
April-June	moist	sun to partial shade	Coreopsis spp.	Tickseed	golden-yellow	4-18"	butterflies, hummingbirds	
March-May	wet to moist	sun	Iris fulva	Copper Iris	orange	20-26"	bees	
March-May	wet to moist	sun	Iris virginica	Southern Blueflag	blue	24-40"	bees	
Introduced Legumes								
April-June	moist to dry	sun to partial shade	Trifolium spp.	white clover (ex.: Ladino; White Dutch), hop clover	white, pink, yellow	4-12"	bees, butterflies	
Native Grasses								
June-October	dry	sun to partial shade	<i>Schizachyrium scoparium</i>	little bluestem	yellow	3-6'	butterflies, bees (for ground nesting)	X
Aug-October	moist to dry	sun to partial shade	<i>Sorghastrum nutans</i>	Indiangrass	yellow	3-8'	butterflies, bees (for ground nesting)	X
Aug-October	moist to dry	sun to partial shade	<i>Andropogon gerardii</i>	big bluestem	red, blue, brown	4-8'	butterflies, bees (for ground nesting)	X
Aug-October	moist to dry	sun to partial shade	<i>Andropogon</i> spp.	other native bluestem spp. (broomsedge, bushy, etc.)	yellow, white, brown	3-6'	butterflies, bees (for ground nesting)	X
Aug-October	moist to dry	sun to partial shade	<i>Panicum virgatum</i>	switchgrass	green, brown	3-6'	butterflies, bees (for ground nesting)	X
June-October	moist to dry	sun to partial shade	<i>Bouteloua curtipendula</i>	sideoats grama	red, orange, yellow	1-3'	butterflies, bees (for ground nesting)	X
April-June	moist	sun to partial shade	<i>Tripsacum dactyloides</i>	eastern gamagrass	brown	3-6'	butterflies, bees (for ground nesting)	X
Vines								
March-April	moist to dry	sun to partial shade	Gelsemium sempervirens	Yellow Jessamine	yellow	10-20'	hummingbirds, butterflies	
March-July	moist to dry	sun to partial shade	Lonicera sempivirens	Coral Honeysuckle	red	10-20'	hummingbirds, butterflies	X
April-May	moist to wet	sun to partial shade	Bignonia capreolata	Cross-vine	red and yellow	30-45'	hummingbirds, bees	
April-May	moist to wet	sun to partial shade	Wisteria frutescens	American Wisteria	bluish-purple, lavender	to 30'	bees	
Trees & Shrubs								
April-May	dry to moist	shade to sun	Amelanchier arborea	Serviceberry	white	12-36'	bees, flies, beetles	
April-May	dry to moist	shade to partial shade	Asimina spp.	Pawpaw	reddish-maroon	6-20'	flies, beetles, moths	
April	dry to moist, tolerates high calcium	sun to partial shade	Rhus spp.	Sumac spp.	white	4-6'	bees, syrphid flies, butterflies	X
March-May	dry to moist	sun to partial shade	Rubus spp.	Dewberry, Blackberry	white	1-5'	bees, beetles, butterflies	
April-May	dry to moist, tolerates high calcium	sun to shade	Vaccinium spp.	Sparkleberry, huckleberry, blueberry	white	6-30'	butterflies	X
March-May	dry to moist, tolerates high calcium	sun to shade	Cercis canadensis	Redbud	pinkish-purple	15-25'	butterflies, bees, flies	X
April-May	dry to moist, well-drained	sun to partial shade	Chionanthus virginicus	Fringe-tree	white	12-15'	butterflies, bees	X
March-June	dry to wet	shade to partial shade	Ilex spp.	American Holly, Possum-haw, Inkberry, Galberry	white	4-45'	bees, flies	X
April-May	moist to dry	sun to partial shade	Cornus spp.	Dogwood spp.	white, greenish yellow	15-30'	bees, beetles, flies	
April-June	moist to dry	sun to partial shade	Diospyros virginiana	Persimmon	yellow, male and female	30-60'	bees, butterflies, moths	X
March-April	moist to dry	sun to partial shade	Prunus spp.	Chickasaw Plum, Crabapple,	white	to 30'	bees, flies, beetles	
April-May	moist to wet	sun to partial shade	Halesia diptera var. diptera	Two Wing Silverbell	white	to 30'	bees, butterflies	
March-April	mesic, wet to submesic	shade to partial shade	Crataegus spp.	Hawthorne spp.	white	15-35'	butterflies, flies, beetles	X
April-June	moist	sun to shade	Magnolia spp.	Magnolias, Sweet Bay	pale yellow to cream	to 60'	bees, beetles	X
May	moist	sun	Photinia spp.	Chokeberry (red and black)	white	6-12'	bees, flies, beetles	
April	moist, acidic	partial shade	Rhododendron spp.	Native Azalea spp.	pink	10-15'	butterflies, hummingbirds	X
April-June	moist	shade to partial shade	Styrax spp.	Snowbell spp.	white	8-20'	bees, butterflies	
April-May	moist	shade to partial shade	Aesculus pavia	Red Buckeye	red, reddish-yellow	20-25'	hummingbirds, bees	
April-May	moist to wet	sun to shade	Viburnum spp.	Southern Arrowwood	white	to 16'	butterflies, bees, beetles, flies	

SPECIES RECOMMENDED FOR MANAGING EXISTING POLLINATOR ENHANCEMENT AREAS IN MISSISSIPPI

Flowering Dates	Soil	Sun	Botanical Name	Common Name	Color	Height	Visitation by Pollinator	Also a host
Mid-Season Flowering								
Perennial Flowers								
May-September	dry	sun	Dalea spp.	prairie clover	white, rose-purple	1-3'	bees, butterflies, beetles	X
May-September	dry	sun to partial shade	Coreopsis tinctoria	Golden Tickseed	yellow with red-brown centers	18-24"	butterflies, syrphid flies, bees	
May-September	dry	sun to partial shade	Echinacea purpurea	Purple Coneflower	purple, reddish purple, pink	12-48"	butterflies, hummingbirds	
May-August	dry	sun to partial shade	Gaillardia spp.	Blanket Flower	yellow, red, yellow and red	1-2'	butterflies	
May-June	dry to dry-mesic	sun to partial shade	Ruellia humilis	Wild Petunia	lavender blue to white	20-36"	butterflies, hummingbirds	
May-June	dry	sun to partial shade	Tephrosia virginiana	Virginia Goat's-rue	pink/yellow	8-28"	butterflies, hummingbirds	
May-September	moist to dry	sun to partial shade	Achillea spp.	Yarrow	white, light yellow	10-36"	bees, beetles, flies, butterflies	
May-June	moist to dry	sun to partial shade	Allium canadense	Wild Onion	violet	12-18"	bees	
May-June	moist to dry	partial shade	Dodecatheon meadia	Shooting Star	white, pink	6-20"	bees	
May-July	moist to dry	sun to partial shade	Dracopis spp.	Clasping Coneflower	yellow with red-brown centers	12-36"	bees, butterflies	
May-September	moist to dry	sun to partial shade	Monarda spp.	Beebalm, Wild Bergamot	pink, purple, reddish purple	12-48"	butterflies, bees, hummingbirds	
May-July	moist to dry	sun to partial shade	Opuntia humifusa	Prickly Pear	yellow	6'-6"	bees, beetles	
May-July	moist to dry	sun to partial shade	Penstemon spp.	Beardtongue	white to blue	1-3'	bees, hummingbirds	
May-September	moist to dry	sun to partial shade	Ratibida pinnata	Pinnate Prairie Coneflower or Greyhead Coneflower	yellow with red-brown centers	3-5'	butterflies, bees	
May-October	moist to dry	sun to partial shade	Rudbeckia spp.	Black-eyed Susan, Brown-eyed Susan	yellow, brown center	14-20"	bees, beetles, flies, butterflies	
May-July	moist	sun to partial shade	Apocynum cannabinum	Indian Hemp	white, greenish	24-36"	wasps, flies	
May-August	moist	sun	Asclepias syriaca	Common Milkweed	pink, purple, white	24-36"	butterflies, bees	X
May-November	moist to wet	partial shade to shade	Impatiens capensis	Jewel Weed	orange	3-5'	bees	
June-July	moist to wet	sun to partial shade	Desmanthus illinoisensis	Illinois Bundle Flower	white	2-18"	bees, butterflies, flies	
May-September	moist to wet	sun to partial shade	Hibiscus spp.	Rosemallow spp.	white to rose, deep red at base	5-7'	bees	
May-August	moist to wet	sun	Asclepias tuberosa	Butterfly Milkweed	orange to yellow	24"	butterflies, bees	X
May-October	wet to moist	sun to shade	Lobelia cardinalis	Cardinal Flower	red	1-5'	hummingbirds	
May-June	wet to inundation	sun to partial shade	Saururus cernuus	Lizard's-tail	white	36-48"	bees, flies	
Vines								
June-August	dry to dry-mesic	partial shade	Centrosema virginiana	Spurred Butterfly Pea	blue	2-3'	butterflies	
May-July	moist to dry	sun to partial shade	Passiflora incarnata	Passion Flower	blue	5-12'	hummingbirds, butterflies, bees	X
June-July	moist to dry	sun	Campsis radicans	Trumpet-creeper	orange	30-45'	hummingbirds, bees	
Trees & Shrubs								
June-July	dry	sun to partial shade	Ceanothus americanus	New Jersey Tea	white	3-4'	hummingbirds, butterflies, beetles, bees, wasps, flies	X
May-June	dry to moist	sun to partial shade	Catalpa spp.	Catalpa	white	70'	bees	
May-June	mesic to moist	sun to partial shade	Gleditsia triacanthos	Honey Locust	greenish yellow	35-75'	bees	
June-July	moist to dry	sun to partial shade	Aralia spinosa	Devil's-walking-stick	white	12-15'	butterflies, bees, wasps, flies	
May-July	moist	partial shade	Hydrangea quercifolia	Oak-leaf Hydrangea	white	4-6'	flies, wasps	
May-June	moist	sun to partial shade	Symplocos tinctoria	Horse Sugar	yellow	15-35'	bees	
June-September	moist to wet	sun to partial shade	Cephalanthus occidentalis	Buttonbush	white	6-10'	bees, beetles, flies	
June-July	moist to wet	sun to partial shade	Rosa spp.	Swamp Rose, Carolina Rose, Climbing Rose	pink	5-7'	bees, flies, wasps, butterflies	
June-July	moist to wet	sun to partial shade	Sabal minor	Dwarf Palmetto	white	4-6'	bees	
Late Flowering								
Perennial Flowers								
July-Oct	dry	sun to partial shade	Chrysopsis mariana	Maryland Golden-aster	golden-yellow	12-18"	bees	X
August-Oct	dry	sun to partial shade	Eupatorium spp.	Boneset, Thoroughwort, Sweetscented Joe-Pye Weed	white	18-36"	butterflies, beetles, bees	
Sept-Oct	dry	sun to partial shade	Pityopsis graminifolia var. latifolia	Grass-leaved Golden-aster	yellow	8-15"	bees	
June-August	dry	sun to partial shade	Silphium astericum var. laevicaule	Rosin Weed	yellow	6-8'	butterflies, bees	
July-Oct	dry	sun to partial shade	Solidago spp.	Goldenrod	yellow	2-4'	butterflies, bees, beetles	X
August-Oct	dry to wet	sun	Helianthus spp.	Narrowleaf or Swamp, Woodland, Hairy Sunflowers	yellow	5-7'	butterflies, beetles, bees	
July-Sept	moist to mesic	sun	Liatris spicata	Dense Blazing Star	rosy-pink to purple	3-4'	butterflies, bees, hummingbirds	
July-August	moist to dry	sun to partial shade	Desmodium spp.	Ticktrefoil, Beggar Ticks, Stick Tights	pink to purple	18-30"	bees, butterflies	
August-October	moist to dry	sun to partial shade	Symphotrichum spp.	New England Aster, Blue Wood Aster, White Oldfield Aster	white, blue, lavender	18'-6"	butterflies, bees	X
Sept-Oct	moist	sun	Bidens aristosa	Beggar Ticks or Bur-marigold	yellow	24-36"	bees, beetles, flies, butterflies	
June-September	moist	sun to partial shade	Chamaecrista spp.	Partridge Pea (Lark)	yellow	18-30"	bees	
July-October	moist	sun to partial shade	Eupatoriadelphus spp.	Trumpet Weed or Joe Pye Weed	pink, lavender	to 8'	bees, butterflies, flies	
August-October	moist	sun to partial shade	Vernonia gigantea	Ironweed	purple	3-5'	bees, beetles, flies, butterflies	
July-Sept	moist to wet	sun	Asclepias incarnata	Swamp Milkweed	pink to rose	36-48"	butterflies, hummingbirds, bees, beetles, wasps, flies	X
Sept-Oct	moist to wet	sun	Helianthus maximiliani	Maximilian Sunflower	yellow	5-7'	butterflies, bees	
June-Aug	wet or innundated	sun to partial shade	Pontederia cordata	Pickereelweed	purple	1-3'	butterflies	